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# Increasing Self-Efficacy and Bystander CPR Rates: A Train-the-Trainer Program

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# INCREASING SELF-EFFICACY AND BYSTANDER CPR RATES: A TRAIN-THE-TRAINER PROGRAM

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Ron and Kathy Assaf College of Nursing

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**NOVA SOUTHEASTERN UNIVERSITY**
**HEALTH PROFESSIONS DIVISION**
**RON AND KATHY ASSAF COLLEGE OF NURSING**

This project, written by Amanda Constantino under the direction of Dr. Kelly Henson-Evertz, Project Chair, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF NURSING PRACTICE

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Certification

We hereby certify that this DNP Project, submitted by Amanda Constantino, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Nursing Practice degree.

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## Abstract

**Background:** The majority of cardiac arrests occur outside of the hospital, yet a significant portion of the population are not trained to provide bystander cardiopulmonary resuscitation (BCPR). BCPR initiated during an out-of-hospital cardiac arrest (OHCA) has numerous benefits and increases positive patient outcomes and survival rates. There is currently a lack of structured training programs that focus on increasing BCPR training rates for OHCA, therefore, the number of individuals trained in BCPR remains low within communities despite evidence showing the clear benefits.

**Purpose:** The purpose of this evidence-based project was threefold: (a) to increase the number of community members within underserved areas in Northeastern Central Florida who are trained in BCPR; (b) to increase self-efficacy levels of community members trained in BCPR to deliver BCPR; (c) to develop and implement a train-the-trainer program for community leaders to maintain increased numbers of BCPR training.

**Theoretical Framework:** Bandura's self-efficacy theory.

**Methods:** This evidence-based project utilized a quantitative, descriptive design. The Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) Pre and Post-Training Surveys were used to collect data measuring self-efficacy levels before and after community participants were trained in BCPR techniques.

**Results:** A total of 55 participants completed the BCPR training and Pre and Post-Training surveys over the course of an eight-week time period. All six BRS-SES survey questions showed statistically significant increases from pre to post using both a paired *t*-test ($p < 0.001$) and Wilcoxon Signed-Rank test ($p < 0.01$).

**Conclusions:** Using a train-the-trainer program with BCPR training targeted to underserved areas, combined with the use of automatic feedback mannequins, is a unique way to increase training rates of BCPR and self-efficacy levels of community members to perform BCPR during an OHCA.

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## Chapter 1: Nature of the Project and Problem Identification

For every 30 individuals who go into cardiac arrest, at least one life could be saved if bystander cardiopulmonary resuscitation (BCPR) was performed (Thakkar Rivera, Kumar, Bhandari, & Kumar, 2016). BCPR involves hands-only compressions with no requirement to give mouth-to-mouth breaths (American Heart Association [AHA], 2017). This shift from traditional cardiopulmonary resuscitation (CPR) was implemented in 2010 in order to give bystanders' more inclination to perform compressions on out-of-hospital cardiac arrest (OHCA) victims (Cheskes, Morrison, Beaton, Parsons, & Dainty, 2016). Early implementation of BCPR increases survival rates and lowers risks of brain damage post cardiac arrest (Kragholm et al., 2017). BCPR performed on OHCA victims while awaiting Emergency Medical Services (EMS) arrival has been found to be the most important factor predicting patient survival rate (Hasselqvist-Ax et al., 2015).

Despite evidence that demonstrates the clear benefits of BCPR, only 30% of the population is trained in this lifesaving measure (AHA, 2018a). Increasing the number of community members who are trained in BCPR, by conducting free training sessions for the public to increase knowledge and confidence levels, can result in improved patient population health. In addition, implementing a community focused train-the-trainer program ensures the skills of BCPR are disseminated into areas and populations that otherwise might not be reached. Empowering individuals with the necessary skills to be able to instruct others in lifesaving techniques will allow for sustainability of the training to continue long-term after project completion.

Increasing the number of community members who are prepared to perform BCPR strengthens the chain of survival and improves population health. While programs geared toward teaching community members BCPR have existed for some time, poor response rates to actual cardiac arrest situations have remained steady, which further emphasizes the need for improving the number of individuals trained to respond in an emergency (Sasson, Haukoos, Eigel, & Magid, 2014). In order to make crucial changes to approaches in which BCPR training is currently conducted, innovative strategies such as those proposed within this project are necessary to produce increased positive patient and community outcomes.

## Problem Statement

There is a lack of structured training programs designed to increase BCPR training rates for OHCA, therefore, the number of individuals trained remains low within communities despite evidence showing clear benefits.

## Purpose Statement

The purpose of this evidence-based project was threefold: (a) to increase the number of community members within underserved areas in Northeastern Central Florida who are trained in BCPR; (b) to increase self-efficacy levels of community members trained in BCPR to deliver BCPR; (c) to develop and implement a train-the-trainer program for community leaders to maintain increased numbers of individuals trained in BCPR.

## Project Objectives

The six objectives of this project were:

1) Identify community leaders willing to be certified as community instructors and commit to providing at least three BCPR classes per year for project sustainability
2) Develop a free Basic Life Support (BLS) Instructor program designed for community leaders
3) Implement a free train-the-trainer BLS Instructor program for a total of five instructor candidates
4) Implement a collaborative BCPR training event for community members within an underserved area of Northeastern Central Florida to increase overall BCPR training rates
5) Evaluate the effectiveness of the train-the-trainer program by measuring each individual instructors BCPR trainings using the BCPR Training Instructor Tracking Forms
6) Measure BCPR training participants self-efficacy levels before and after training using Basic Resuscitation Skills Self-Efficacy Scale Pre and Post-Training surveys

## Theoretical Framework

Bandura's self-efficacy theory provided a structured framework for this project. According to Bandura (1977), self-efficacy is an individual's belief that their actions are capable of making an impact in a given situation. Although not entirely synonymous, self-efficacy can be perceived as a similar concept to an individual's self-esteem or confidence level (Eller, Lev, Yuan, & Watkins, 2018). Having the belief that one can make a change through their actions is a powerful motivator for learning. The self-efficacy theory follows the conceptual framework of the social cognitive theory in which Bandura (1977) suggests individuals absorb information and learn by observing others.

According to Hernández-Padilla, Suthers, Fernández-Sola, and Granero-Molina (2016), having a high level of self-efficacy can result in better performances during resuscitation attempts, whereas a lower self-efficacy can result in a reluctance to participate in a bystander cardiac arrest at all. Additionally, BCPR training has been shown to increase self-efficacy in individuals with recent resuscitation training (Ro et al., 2016).

According to Bandura (1977), the self-efficacy theory explains that when individuals believe in themselves, they will make attempts to begin or complete tasks. According to Lavoie et al. (2018), self-efficacy is the certainty that one can achieve a positive result, which is reflected by the ambitions that people set for themselves and their determination in accomplishing these goals. Self-efficacy is based on both expected ability and expected results (Bandura, 1977). Expected ability is an individual's confidence that they are proficient enough to perform the task. Expected results signifies the confidence the individual has in an anticipated outcome after performing the action itself. However, expected ability and expected outcomes are not always positively correlated. The four main concepts that comprise the self-efficacy theory include performance experience, vicarious experience, verbal persuasion, and emotional states.

**Performance Experience**

The concept of performance experience is likely the most powerful concept that affects self-efficacy (Cook & Artino, 2016). Performance experience draws from an individual's previous experiences of being successful when completing a task. If one has successfully completed a task, it is more likely they will be willing to attempt the task or one similar to it again in the future. Likewise, if an individual fails at completing a task, they are unlikely to attempt repeating the same task again.

**Vicarious Experience**

Vicarious experience involves modeling behavior from others. The degree of how an individual's self-efficacy is impacted is directly related to how closely one associates themselves with the person modeling the behavior (Bandura, 1997). Observing an individual, particularly one who is considered a role model, complete a task increases self-efficacy. Witnessing such a success by another person instills a sense of confidence that the task is achievable.

**Verbal Persuasion**

Verbal or peer influence can have an impact on self-efficacy. Encouragement or discouragement by others to complete a task is a contributing factor to an individual actually completing the task (Bandura, 1997). Receiving praise from others is an important component of building self-efficacy. According to Halper and Vancouver (2016), if individuals do not have a source to give them constructive criticism, or if the feedback provided is vague, self-efficacy will be lower and therefore performance will be hindered. Whether an individual receives positive or negative feedback from others directly affects the person's self-efficacy and motivation to begin or complete a task.

**Emotional States**

When performing tasks, especially ones that may be difficult, individuals can be affected by a vast array of emotions such as fear, anxiety, pressure, or loss of control. Fear of participating in a particular event is directly attributed to an individual's self-efficacy (Bandura, 1977). A bad experience can subsequently lead to reluctance to

participate in a similar event in the future. Positive or negative feelings an individual may have related to a task influences self-efficacy.

**Application to Project**

The self-efficacy theory is directly applicable to this project of implementing a community focused train-the-trainer program to increase the number of laypersons trained in BCPR. According to Hernández-Padilla et al. (2016), self-efficacy is a crucial element in achieving competence in resuscitation techniques. According to Ro et al. (2016), individuals with recent BCPR training have higher self-efficacy levels to perform BCPR, which emphasizes the importance of educational programs targeting at-risk communities. BCPR training programs should focus on reassurance, strengthening of skills, and directed feedback to increase learning (Charlier, Van Der Stock, & Iserbyt, 2016).

Performance experience plays an enormous role in BCPR self-efficacy. Individuals who have had a negative or traumatic experience in performing BCPR will likely be the most challenging to achieve high levels of self-efficacy. In contrast, anyone who has performed BCPR already with positive outcomes may be more apt to respond to a similar situation again and may even be more willing to impart their knowledge and past experiences on others. Vicarious experience, which involves modeling behaviors, occurs during the train-the-trainer program when community leaders model psychomotor skills such as compression techniques. Furthermore, skills are also modeled by peers when the new trainers disseminate the skills and knowledge learned into the community. Because observing individuals that one closely identifies themselves with increases self-efficacy, having instructors who are immersed within the community as church and

school leaders, provides a greater impact on increasing the number of BCPR trained individuals within the community.

Verbal persuasion from friends or family members to participate in BCPR training or BPCR train-the-trainer instruction is a key component of raising self-efficacy levels to participate in trainings. The train-the-trainer program encourages participants to advocate for an abundance of training within the population. Emotional states are an important factor to consider when conducting BCPR training. Individuals who have any type of post-traumatic stress disorder could have an adverse reaction to learning BCPR, which could subsequently result in lower self-efficacy levels. While not all individuals may be able to overcome such adverse events, and achieve high levels of self-efficacy, the need to ensure community members have easy access to training is evident.

## Project Significance

Establishing a train-the-trainer program to increase the number of community members who are trained in BCPR is essential to achieving positive patient outcomes in cardiac arrest victims. Cardiac arrest victims who have BCPR performed have triple the chance of survival and reduced incidences of permanent brain damage (Al Jufaili, 2018). Because community members are often the first responders in OHCA there is a growing need to involve these individuals in emergency response training (Mani, Annadurai, & Danasekaran, 2015). Improving laypersons BCPR response times to OHCA victims benefits both community members and healthcare systems. The high rates of individuals who are not prepared to respond to cardiac arrest victims has largely been attributed to three major factors, including not performing compressions correctly or effectively, concern of liability/lawsuits, and fear of contracting a disease (Bouland et al., 2017).

According to Chen et al. (2017), the most common reason for individuals not attending CPR training sessions is simply that they did not know where to find instruction. This project focused on reducing these barriers by advertising the free training, and providing proper BCPR instruction to diminish fears community members may have that would prevent them from performing BCPR to cardiac arrest victims. Integrating widespread BCPR training to improve awareness and cultivate skills can significantly reduce these common barriers (Case et al., 2018).

**Nursing Practice**

BCPR has been linked to higher survival rates to discharge, as well as enhanced cost savings due to lower healthcare necessities (Geri et al., 2017). For every minute in which BCPR is not performed, patient survival rate decreases by 7.2% (Thakkar Rivera et al., 2016). Ensuring adequate perfusion through early BCPR protects the neurological function of those who survive an OHCA (Bouland et al., 2017). Additionally, patients who received BCPR had a 30% reduced risk of nursing home placement (European Society of Cardiology, 2018). These statistics demonstrate that patients who arrive to hospitals in a more favorable condition due to initiation of BCPR in turn put less strain on the healthcare system and nursing staff due to faster recovery and discharge times.

**Healthcare Outcomes**

Increasing the number of community members who are BCPR trained has the potential to positively influence healthcare outcomes. Cardiac arrest affects 475,000 individuals a year, however, victims who receive BCPR survive approximately 45% of the time (AHA, 2018b). According to Navarro-Patón et al. (2017), individuals who have been trained in BCPR are able to respond quicker to cardiac arrest events and perform

superior chest compressions than those without BCPR training. Additionally, communities in states that have increased BCPR training rates have improved survival rates for victims of OHCA (Sasson et al., 2014). Ensuring community members are trained in BCPR can vastly improve the out-of-hospital survival rates for cardiac arrest victims because of early initiation of chest compressions (Jin, Li, & Yuan-Oing, 2015). Furthermore, BCPR enhances the prospect of improved cardiac and neurological function following cardiac resuscitation (Becker et al., 2017).

**Healthcare Delivery**

According to Rajan et al. (2016) individuals who receive BCPR while waiting for Emergency Medical Services (EMS) to arrive have more than double the survival rates of individuals who do not have BCPR performed. This finding emphasizes the importance of training as many community members as possible in BCPR in order to increase survival rates associated with cardiac arrest. According to the AHA (2015), community members are an essential component of a successful healthcare delivery system. Having community members involved as part of the chain of survival by performing BCPR is critical to improving the current status of healthcare delivery through early recognition and intervention.

**Healthcare Policy**

Healthcare policies directed towards increasing BCPR training is an important piece of the puzzle, which is lacking within society. Efforts to make changes directed toward promotion of learning lifesaving skills increase how comfortable individuals are in performing BCPR (Dobbie, MacKintosh, Clegg, Stirzaker, & Bauld, 2018). According to Bobrow (2017), learning BCPR is crucial and should be included as part of mandatory

education for high school students. Florida is one of 12 states that does not currently have legislation mandating BCPR training as a criterion for high school graduation (AHA, 2018b). This lack of consistent legislation from state to state equates to approximately 700,000 students across the nation who lack BCPR training (Brown, Lynes, Carroll, & Halperin, 2017). High school students are an ideal audience to teach BCPR skills to, as they are both physically and emotionally mature enough to understand the concepts, and these lifesaving measures should be instilled early on in life (Hoyme & Atkins, 2017). Mandating BCPR training in schools is an excellent way to increase the number of individuals who are trained to perform BCPR (Hwang et al., 2017).

## Summary

Despite evidence showing the many benefits of BCPR, rates remain low due to a lack of structured and consistent BCPR training programs available for community members. Implementing a train-the-trainer BCPR program to increase the number of community members who are trained and certified to teach BCPR will have a significant impact on improving patient outcomes and survival rates. Additionally, increasing the number of community members who are trained to perform BCPR will significantly improve healthcare delivery and decrease health costs.

## Chapter 2: Review of the Literature

The recent Institute of Medicine (2015) report regarding cardiac arrest strongly advocates for greater community education on cardiopulmonary resuscitation (CPR) training in order to increase cardiac arrest victim survival rates. While training every member of the population is unrealistic, high numbers of individuals trained in bystander cardiopulmonary resuscitation (BCPR) within a community corresponds to increased rates of BCPR performed during an actual cardiac arrest event (Wang, Li, & Yuan-Qiang, 2015). Therefore, BCPR training strategies during this project were focused on reaching the greatest number of community members as possible. Methods to achieve this goal have been unsuccessful in the past, as BCPR training rates continue to remain stagnant (Sasson et al., 2013). Unique strategies that focus on achieving higher rates of community members trained in BCPR are essential in order to make changes to the current training processes in place.

### Review of the Literature/Evidence

A literature review involves searching research for current knowledge and deficits that exist about the topic in question and then analyzing relevant articles for underlying themes (Neill, 2017). The clinical question that guided this literature review was: *Does a BCPR train-the-trainer program increase the number of community members trained in BCPR and increase self-efficacy levels to perform BCPR?*. A literature search was conducted to locate information on BCPR training rates, outcomes, and BCPR training programs. Databases searched included: Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed and MEDLINE. Key search words included “bystander cardiopulmonary resuscitation”, “bystander CPR”, “out of hospital compressions”,

"community CPR", "public CPR training", "hands only compressions", "bystander CPR training", "hands only CPR training", "effect of CPR training", "train the trainer CPR" and "hands only CPR". Inclusion criteria for the articles included full, primary research studies that were peer-reviewed and published between 2013 and 2018, written in English, and included relevant information pertaining to BCPR. Exclusion criteria were studies with no data provided, dispatcher assisted BCPR, BCPR performed by emergency medical services (EMS) personnel, studies that included solely minors, and BCPR studies related to non-cardiac arrest events such as drownings or trauma. A total of 131 articles were retrieved. After excluding non-relevant articles and omitting duplicates, a total of nine studies remained. The studies were categorized according to identified themes related to increasing BCPR training rates, including free public BCPR training, peer-learning, and low socioeconomic status.

**Free Public BCPR Training**

Bouland et al. (2017) conducted a study that provided BCPR training to 238 laypersons to see if training reduced barriers that inhibited individuals from performing BCPR on cardiac arrest victims. Pre and post-test surveys were used to collect data from participants who were aged 14 years or older. Statistically significant findings noted participants trained in BCPR were more likely to perform BCPR on a stranger ($p < 0.0001$) and were less fearful of contracting a disease ($p = 0.0001$) or being sued for performing BCPR ($p = 0.0001$). Results of this study indicate training community members in BCPR helps decrease associated barriers and is an effective way to increase the likelihood that individuals will respond to an out-of-hospital cardiac arrest (OHCA).

González-Salvado et al. (2016) conducted short BCPR training sessions at a community health event to measure the compression quality of lay people in comparison to healthcare providers. A total of 74 healthcare providers and 81 laypersons participated in a brief, five-minute instruction on cardiac arrest, how to respond to victims, and how to perform quality CPR (QCPR), which included rate, depth, hand placement, and chest recoil. The SkillReporter software was used to calculate participants QCPR score based on the aforementioned variables. A score of 70% or higher was considered good quality CPR performance. During these brief training sessions, participants were able to practice skills on real-time feedback mannequins and were then evaluated during a 2-minute continuous compression test. Both the laypersons and healthcare providers were able to achieve above the 70% goal for QCPR. No significant differences in quality of compressions between healthcare providers and laypersons was noted ($p = 0.10$), which indicates that free brief training sessions for laypersons is an efficient and effective method of teaching quality BCPR.

Using automatic feedback devices, Baldi et al. (2017) conducted a randomized controlled study to measure the quality of compressions performed by laypersons. The feedback devices measured hand placement, chest recoil, depth, and rate of compressions. A total CPR score was also generated from the high-fidelity mannequins that assigned participants a percentage score from zero to 100. Scores were based on adherence to the current 2015 American Heart Association (AHA) CPR guidelines, with a higher score being aligned with better performance quality. Participants were divided into three groups who received: no feedback (NF), short feedback (SF) of one minute, or long feedback (LF) of 10 minutes. Every participant was taught the same cognitive

knowledge with the only difference among the three groups being the amount of time participants used the feedback device within the course. At the completion of the course, all participants were tested with the automatic feedback device to measure quality for one minute. Findings demonstrated a statistically significant difference between the NF and SF groups ($p = 0.005$) and the NF and LF groups ($p = 0.022$) in correct hand placement, chest recoil, depth and total quality CPR score ($p < 0.001$). However, no significant differences were found in chest compression rate ($p = 0.529$), which suggests participants are able to achieve the proper rate through cognitive knowledge learning alone. Additionally, there were no significant differences between the short and long feedback groups, lending evidence toward the benefits of shorter practice times being sufficient for training BCPR participants when using automatic feedback devices.

Malsy, Leberle, and Graf (2018) conducted a pilot study where physicians and paramedics provided free BCPR training to 303 laypersons. Pre and post-training surveys measured the self-efficacy of participants' performance of compressions during an emergency. Findings revealed that prior to BCPR training only 41.6% of participants were confident in their ability to deliver compressions as compared to 100% of participants feeling confident in their ability to deliver compressions to a cardiac arrest victim after the training. Results demonstrate that self-efficacy levels regarding resuscitation performance can be increased through free public BCPR teaching sessions for community members.

Sánchez et al. (2015) conducted a quality improvement project that taught BCPR to travelers within train stations in Europe. Volunteer instructors offered free BCPR sessions to travelers in train stations and passengers on trains. Pre and post-training

surveys were completed by a total of 157 participants over a period of five days. The proportion of participants who felt prepared to perform compressions on a victim during an OHCA victim increased from 10% prior to the training to 94% after the training. Findings from this study demonstrated there is a public need for BCPR training and self-efficacy levels of laypersons to perform BCPR can be increased significantly in a short time frame.

**Peer-Learning**

Bergamo et al. (2016) conducted a retrospective observational study to analyze the effects of the TAKE10 Compression-Only CPR program in Austin, Texas. The TAKE10 program provides free, brief 10-minute BCPR sessions to community members in areas where there are high rates of cardiac arrests and low rates of BCPR performed. Trainers for this program were recruited from high-risk regions identified as areas with lower median incomes and lower educational levels. Additionally, trainers with connections to sizeable areas of the community such as the Boy and Girl Scouts, YMCA, public libraries, and neighborhood associations were recruited. Using trainers with strong ties to the community was purposeful, in order to provide a non-intimidating training environment for participants to be able to ask questions and learn skills comfortably. Trainers received one hour of lecture-based training and then borrowed TAKE10 compression only CPR training kits consisting of mannequins and an instructional DVD. Trainers collected demographic information from participants they trained in order to measure the number of participants trained. A multiplier effect was achieved by trainers holding their own training sessions within the community, thus increasing efficiency of training and the overall rate of those trained in BCPR. Data collected from the Cardiac

Arrest Registry to Enhance Survival (CARES) database revealed 11,242 community members were trained in BCPR between 2008 and 2013. Results also found the mean incidence of BCPR performed in all zip codes increased throughout the study period ($p < 0.05$) and that there were statistically significant more TAKE10 learners in high-risk zip codes as compared to the overall population ($p = 0.01$). Findings emphasize the importance of community leaders providing BCPR knowledge and skills training to high-risk areas in order to increase the overall rate of BCPR performed.

Charlier, Van Der Stock, and Iserbyt (2016) conducted a study using peer-assisted learning (PAL) as a model for teaching CPR. A total of 137 participants were divided into three groups: a compression peer-assisted learning (C-PAL) group where students were taught compressions, a ventilation peer-assisted learning (V-PAL) group where students were taught ventilations, or a control group where an expert instructor taught students both subjects. After participants in the C-PAL and V-PAL groups learned their respective skill, they paired with another student in the opposite group to teach each other the skill they had just learned. One week later, all students were tested for quality CPR variables using the Ambu CPR-Software. Statistically significant differences were only noted between the PAL and control groups for correct chest compression depth ($p = 0.01$), however, all three groups met correct standards for total chest compressions, depth of chest compressions, total rescue breaths performed, and rescue breath volumes. This research demonstrates using laypersons to teach BCPR to peers' results in better performance of achieving the correct compression depth in accordance with national guidelines. The PAL model assists in maximizing learning and reinforcing skills and knowledge, which can be applied as a train-the-trainer model for BCPR training.

**Low Socioeconomic Status**

Thakkar Rivera et al. (2016) conducted a correlational study to assess the impact of race, income, and educational level on BCPR rates and cardiac arrest victim survival rates. Results demonstrated a statistically significant higher rate of survival ($p = 0.05$) among individuals when BCPR was performed within neighborhoods of higher income levels as compared to lower income neighborhoods. The authors attributed the disparities between the neighborhoods to reduced frequency and reduced quality of CPR performed. Survival in predominately white neighborhoods was also statistically significantly higher as compared to predominately black neighborhoods ($p = 0.04$), even though there was no statistical significance in the incidence of BCPR performed between the two neighborhoods. These results indicate the importance of the quality of compressions performed, which should be considered as an important element of BCPR training. Lastly, neighborhoods with a higher educational status had a statistically significant increased rate of survival with BCPR as compared to lower educational level neighborhoods ($p = 0.03$). The increased survival rates were also attributed to reduced incidence of OHCA and performance quality of bystanders. Overall, these statistics reinforce the need for BCPR training with an emphasis on quality of compressions in areas with a lower socioeconomic status in order to improve survival rates.

Moon et al. (2014) conducted a correlational study to measure the differences in response rates of BCPR initiation and survival to discharge rates according to neighborhood ethnicity. Data was collected through the Save Hearts in Arizona Registry and Education (SHARE) database to obtain demographic information and whether BCPR was performed. Findings demonstrated that BCPR was provided less frequently in

Hispanic neighborhoods (28.6%) compared to non-Hispanic neighborhoods (43.8%; $p < 0.001$). Survival to discharge rates were also lower in Hispanic neighborhoods (4.9%) as compared to non-Hispanic neighborhoods (10.8%, $p < 0.001$).

## Utilization of Findings in Practice

Community focused training programs specifically directed toward areas of need have shown to be an effective way of increasing BCPR training rates (Bergamo et al., 2016). However, gaps in the literature reveal a lack of structured community-based programs designed for this specific purpose. Identification of high-risk areas such as underserved neighborhoods and low-income areas are regions that should be targeted for training (Root et al., 2013). BCPR training in public areas appears to be a prime location for recruiting participants. Additionally, the large number of participants involved in the BCPR studies demonstrates a desire of the public to learn BCPR and equip themselves with the necessary training skills. Train-the-trainer programs and peer-assisted learning strategies are effective methods for achieving a multiplier effect to increase the number of community members trained in BCPR (Bergamo et al., 2016; Charlier, Van Der Stock, & Iserbyt, 2016). This approach to BCPR training can improve overall survival rates and ensure sustainability of the program.

## Summary

BCPR increases survival rates for cardiac arrest victims. Free community-based training, even in brief increments, is effective and corresponds to increased rates of BCPR performance. Specific areas should be targeted for training to further increase BCPR training rates. Implementation of a community focused BCPR training program that combines free public BCPR training focused on underserved areas that include peer-

learning is an ideal way to integrate evidence-based practices into one comprehensive project.

# Chapter 3: Methodology

Over 420,000 individuals are victims of an out-of-hospital cardiac arrest (OHCA) each year in the United States (Sasson et al., 2014). According to Wissenberg et al. (2013), increased rates of bystander cardiopulmonary resuscitation (BCPR) are positively associated with increased survival rates of patients who suffered an OHCA. Training programs directed toward the public have shown to be an effective way of increasing bystander cardiopulmonary resuscitation (BCPR) rates, however, current programs in place are not successfully achieving higher rates of community members trained.

Despite current initiatives to increase the number of individuals trained, rates remain low (Malsy et al., 2018). Bridging the gap in the training deficit by incorporating community leaders in high-risk areas to be instructors can deliver the necessary critical knowledge and skills into their communities to achieve a multiplier effect and increase layperson BCPR training rates. The purpose of this evidence-based project was threefold: (a) to increase the number of community members within underserved areas in Northeastern Central Florida who are trained in BCPR; (b) to increase self-efficacy levels of community members trained in BCPR to deliver BCPR; (c) to develop and implement a train-the-trainer program for community leaders to maintain increased numbers of BCPR training. Approval to conduct the project was granted by Nova Southeastern University's (NSU) Institutional Review Board (IRB; see Appendix A).

## Project Design

This evidence-based project utilized a quantitative, descriptive design. The framework of this project centered around Bandura's self-efficacy theory. A pre and post-

training survey was used to collect data measuring self-efficacy levels before and after community participants were trained in BCPR techniques.

**Survey Tools**

In order to measure the self-efficacy outcomes of the training, the Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES), a validated tool with a Cronbach's alpha coefficient of 0.96, was adopted and adapted to BCPR training. Permission to adopt and adapt this tool is included as Appendix B. The BRS-SES Pre-Training Survey (see Appendix C) contained demographic questions (gender, age, level of education, ethnicity), and three questions that asked participants if they had ever taken a CPR course previously, whether they were currently CPR certified, and how they heard about the training. The BRS-SES Pre and Post-Training surveys contained six identical 5-point Likert scale type questions aimed at measuring participant self-efficacy to perform BCPR. The BRS-SES Post-Training Survey (see Appendix D) asked one additional 5-point Likert scale type question (I feel more confident administering BCPR after attending the training provided today). Response options ranged from not at all confident (1) to extremely confident (5). According to González-Salvado et al. (2016), free community-based BCPR training is an effective method of increasing the number of individuals trained because it eliminates financial obstacles. Additionally, using a train-the-trainer model to recruit community leaders to be instructors in underserved areas allows for immersive training to occur within areas of need (Bergamo et al., 2016).

**Sample Size**

G*Power software was used to calculate statistical power. Using an effect size of 0.5, an error probability of 0.05 and a power of 0.8, the estimated sample size needed to

reach statistical significance for this project was determined to be 34 individuals. To account for attrition and non-linkable surveys, the minimum sample size was set at 50 individuals. Obtaining an adequate sample size for the evidence-based practice (EBP) project was critical to ensuring results were generalizable to the population (Hazra & Gogtay, 2016).

**Data Analysis**

Data collected from the surveys during the community BCPR event were analyzed using the Statistical Package for Social Sciences (SPSS) software (Version 26, by International Business Machines [IBM]). For each question community participants answered on the BRS-SES Pre and Post-training surveys, the mean, standard deviation, and paired differences of responses were calculated and presented in table format. A paired *t*-test was utilized to compare the BRS-SES Pre and Post-Training survey results and analyze self-efficacy levels of community members for statistical significance. A *p*-value of $\leq 0.05$ was used to determine statistical significance in order to be congruent with other similar studies. Additionally, a Wilcoxon Signed-Rank (nonparametric) test was performed in order to control for potential violations of *t*-test assumptions by analyzing ordinal level Likert scale data (McDonald, 2014).

**Setting**

This project was conducted at a non-profit clinic in an underserved area of Northeastern Central Florida. Community assessments and data from the United States Census Bureau were used to identify areas with high poverty levels, low educational levels, and areas with individuals lacking health insurance. The median annual income of residents in this area of Northeastern Central Florida is $29,587. Additionally,

approximately 23% of residents under 65 years old do not have health insurance, and only 20.9% of residents have earned a bachelor's degree or higher. Free community trainings conducted by instructors were completed at various underserved areas in Northeastern Central Florida where instructors were affiliated, including churches, a Title 1 school, community outreach organizations, and a Boys and Girls club. According to Thakkar Rivera et al. (2016), there is a lower rate of survival in OHCA in lower-educated neighborhoods and lower-income areas. Therefore, this geographical area was a prime location to conduct community wide BCPR training.

**Inclusion Criteria**

Participants for the community BCPR training included adults and high school students who were at least 18 years old, lived in Northeastern Central Florida, were able to read, write, and speak English, and did not have a current CPR certification. Participants for the train-the-trainer portion of the project included adults who were able to read, write, and speak English, and had access to underserved community groups.

**Exclusion Criteria**

Exclusion criteria for the community BCPR training included individuals less than 18 years old, individuals who were unable read, write, or speak English, and anyone with a current CPR certification. Exclusion criteria for the train-the-trainer portion of the project included individuals less than 18 years old, individuals who could not read, write, or speak English, and anyone who was currently a cardiopulmonary resuscitation (CPR) instructor.

## Ethical Considerations

This project included teaching community members BCPR and surveying individual self-efficacy levels before and after training, as well as training community leaders to be instructors. Because human subjects were involved in this project, it was essential to consider any ethical issues that could have arisen. The most important consideration for any project is protecting human subjects (Stausmire, 2014). According to Holub (2017), ethical principles should be considered prior to conducting any project in order to avoid potential harm to participants. Ethical measures including confidentiality, non-maleficence, and beneficence were incorporated into this project.

Maintaining the ethical principle of confidentiality involved ensuring participants' information was kept private and secure to avoid potential harm from occurring (Finch, 2019). All data collected during this project was kept confidential and stored in a locked box and/or in a password protected electronic file that only the project implementer was able to access. No personally identifiable information was disclosed to any entity or organization. Paper surveys and password protected data files will be kept for a period of three years as per NSU's IRB policy. After three years, paper files will be shredded, computer files will be deleted, and the recycling bin will be permanently deleted.

The ethical principle of non-maleficence focused on ensuring no harm was done to participants (Schröder-Bäck, Duncan, Sherlaw, Brall, & Czabanowska, 2014). To reduce harm, risk minimization was incorporated into all aspects of the project. Participant risk minimization included making the project voluntary, having written resources for free support groups available if needed, and being prepared to individually debrief any participant in the event of an unexpected emotional response as a result of

discussing or practicing CPR. Through the application of ethical principles and implementation of risk minimization, community members were adequately protected from any avoidable harm related to participating in the project. No participants reported any adverse effects as a result of participating in the BCPR training project.

Beneficence, or considering the greater good of the public, was considered during this project to ensure the benefits outweighed any risks (Sulmasy, 2017). The ethical principle of beneficence was maintained by determining the best way to disseminate BCPR training to the public, which will be beneficial for future trainings. Furthermore, the implementation of this project can positively impact the lives of community members by having provided individuals in high-risk areas with the skills needed to perform quality BCPR to a victim in an OHCA.

Additionally, ethical approval to conduct the project was granted by NSU's IRB (see Appendix A). The project was verbally explained to participants including the purpose of the project, their role in the BCPR training, and possible risks of participating. A written participant consent letter was provided to all participants (see Appendix E). For BCPR community participants, the collection of a signed written consent form would have been the only record linking participants to the project, so in order to maintain confidentiality, an IRB waiver of written consent was requested and approved (see Appendix A). The project was explained, and participants were given an opportunity to ask questions prior to engaging in the BCPR training. BCPR community participants were also informed that participation was voluntary and they were able to stop participating in the training at any time.

## Incentives

Incentives in the form of a goody bag were given to BCPR community participants, which included a printed handout summarizing BCPR steps, a CPR-themed wristband, Lifesavers candy, and a bottle of water. Participants in the train-the-train program received all instructor training for free, were provided lunch on both days of the training, and were certified as an American Heart Association (AHA) BLS instructor for a period of two years upon successful completion of the course requirements. Participants who complete the required three free community-based courses each year (for two subsequent years) and report data from trainings on the BCPR Training Instructor Tracking Form (see Appendix F) will be eligible to renew their instructor cards for free in 2021 for another two-year period.

## Project Objectives

The objectives of this project were as follows:

**Objective 1**: Identify community leaders willing to be certified as community instructors and commit to providing at least three classes per year for project sustainability.

**Objective 2:** Develop a free BLS Instructor program designed for community leaders.

**Objective 3:** Implement a free BLS Instructor program for a total of five instructor candidates.

**Objective 4:** Implement a collaborative BCPR training event for community members within an underserved area of Northeastern Central Florida to increase the overall BCPR training rates.

**Objective 5:** Evaluate the effectiveness of the train-the-trainer program by measuring each individual instructors BCPR Training Instructor Tracking Forms.

**Objective 6:** Measure BCPR training participants' self-efficacy levels before and after training using the BRS-SES Pre and Post-Training Surveys (see Appendices C and D).

**Timeline**

This project consisted of three phases which took place between May and July, 2019. The first phase of the train-the-trainer program took place over the course of two days. The first day consisted of nine hours of didactic coursework. The second day of train-the-trainer training lasted five hours and consisted of a monitoring session and individual instructor debriefing. The second phase of the train-the-trainer program included community BCPR training for seven days in an underserved area. Each training session delivered up to 12 BCPR trainings over the course of a six-hour day. Seven days of BCPR training was conducted to increase the number of community members trained in BCPR. The third phase of the program involved newly trained instructors teaching their own BCPR classes to community members. Data will continue to be collected through 2021 during each newly trained instructors' BCPR trainings.

**Resources/Budget**

The budget for this project included materials and supplies for instructor training, printing costs for advertisement of the community CPR training events (see Appendix G) and surveys, goody bag contents for the events, as well as equipment for the instructor kit that newly trained instructors were given for their own community training events. The total cost of this EBP project was $3,879.95 (see Table 1). Partial funding for this project was provided through a NSU Health Professions Division (HPD) Education Research Grant in the amount of $2,525.10.

Table 1

*Project Budget*

| Category | Description | Cost | Quantity | Total |
|---|---|---|---|---|
| Instructor training | Online instructor essentials | $34 | 5 | $170 |
| Instructor training | Instructor manual | $39.25 | 5 | $196.25 |
| Instructor training | Provider manual | $14.50 | 5 | $72.50 |
| Instructor training | Shipping for above items | $10.95 | 1 | $10.95 |
| Instructor training | BLS provider course | $50 | 5 | $250 |
| Instructor training | BLS instructor certification cards | $25 | 5 | $125 |
| Instructor training | Lunch | $20 | 5 | $100 |
| Instructor kit | Family & friends CPR DVD | $35.99 | 5 | $179.95 |
| Instructor kit | Auto-feedback adult mannequin | $143.14 | 10 | $1,431.40 |
| Instructor kit | AED trainers | $70 | 5 | $350 |
| Printing materials | Paper/Ink for instructor handouts | $10 | 5 | $50 |
| Printing materials | Flyers for community CPR event | $0.09 | 500 | $45 |
| Printing materials | Pre/Post-training surveys | $0.18 | 500 | $90 |
| Community event | Water bottles | $0.10 | 200 | $20 |
| Community event | Lifesavers | $0.58 | 200 | $116 |
| Community event | Handout summary | $0.09 | 200 | $18 |
| Community event | Goody bags | $0.04 | 200 | $8 |
| Community event | CPR wristbands | $0.32 | 200 | $64 |
| Fuel costs | BCPR trainings (7 x 15 mi) | $0.58/mi | 105 | $60.90 |
| Fuel costs | Community trainings (30 x 30 mi) | $0.58/mi | 900 | $522 |
| Total cost for project | | | | $3,879.95 |

## Outcome Measures

The outcome measures for this project are listed below:

**Objective 1:** Identify community leaders willing to be certified as community instructors and commit to providing at least three classes per year for project sustainability.

*Outcome Measure:* This objective was met by successfully enrolling a total of five instructor candidates who had been identified as community leaders into the train-the-trainer program.

**Objective 2:** Develop a free BLS Instructor program designed for community leaders.

*Outcome Measure:* The train-the-trainer program met all of the requirements of the AHA's Basic Life Support (BLS) Instructor course and also included added components focused on community-based BCPR training. Additionally, community-based trained trainers committed to teach at least three free community-based BCPR classes per year for the next two years.

**Objective 3:** Implement a free BLS Instructor program for a total of five instructor candidates.

*Outcome Measure:* All five of the instructor candidates successfully completed the required elements of training, including passing the BLS Provider Course Exam with a score of 90% or greater and the BLS Instructor Exam with a score of 84% or greater. Instructor candidates were able to demonstrate psychomotor skills according to the AHA's BLS skills checklist, which is an open-access tool for instructor trainers, and completed a BLS monitoring session, which was evaluated objectively using the AHA Instructor Monitoring Form. Trained trainers completed a community BCPR monitoring session that was evaluated independently by two certified AHA instructor trainers.

**Objective 4:** Implement a collaborative BCPR training event for community members within an underserved area of Northeastern Central Florida to increase overall BCPR training rates.

*Outcome Measure:* This objective was met by training at least the calculated sample size of 50 community participants in BCPR.

**Objective 5:** Evaluate the effectiveness of the train-the-trainer program by measuring each individual instructors BCPR Training Instructor Tracking Forms (see Appendix F).

*Outcome Measure:* This objective was met, and will continue to be met going forward by each instructor candidate conducting at least three BCPR classes annually and collecting the total number of community members and locations of training completed by the instructors through the use of the BCPR Training Instructor Tracking Form. Data was and will be collected from instructors each time a community training is conducted over the two-year time period that instructors' certifications are valid, which will provide a greater evaluation of the effectiveness of the program over time. This will be an ongoing measure that will not be able to be reported until the two-year period ends.

**Objective 6:** Measure BCPR training participants' self-efficacy levels before and after training using the BRS-SES Scale Pre and Post-Training Surveys (see Appendices C and D).

*Outcome Measure:* This outcome was met, and will continue to be met, by administering a six-question pre-training survey and a seven-question post-training survey that ask 5-points Likert type scale questions. Responses range from not at all confident (1) to extremely confident (5). To evaluate changes in self-efficacy levels, a paired *t*-test and

Wilcoxon-Signed Rank test was and will be conducted on future data. A $p \leq 0.05$ will be used to determine statistical significance of results.

## Summary

The focus of this evidence-based practice project was to increase the number of community members trained in BCPR and to incorporate community leaders in underserved areas of Northeastern Central Florida as BCPR instructors. Applying ethical principles of confidentiality, beneficence, and non-maleficence, in addition to implementing risk minimization strategies, adequately protected community members and leaders from any avoidable harm related to participation in the project. The train-the-trainer program was designed to be sustainable, cost-effective, and can be easily replicated in order to achieve a greater number of community members trained in BCPR, increased survival rates, and positive patient outcomes for OHCA victims.

## Chapter Four: Results and Discussion

Research regarding the importance of early administration of bystander cardiopulmonary resuscitation (BCPR) for out-of-hospital cardiac arrest (OHCA) victims reflects its numerous benefits and positive patient outcomes. This evidence-based practice (EBP) BCPR training project added to the current evidence by incorporating community leaders as instructors for underserved areas and using automatic feedback device mannequins for training to ensure high-quality BCPR performance was met. The clinical question that guided this EBP BCPR training project was: *Does a BCPR train-the-trainer program increase the number of community members trained in BCPR and increase self-efficacy levels to perform BCPR?*.

Although strategies to improve BCPR training rates have been ongoing, the best method for improving response rates of community members within high-risk, underserved areas has not been determined since BCPR training rates continue to remain low (King et al., 2015). The train-the-trainer program sought out community leaders, certified these individuals to be American Heart Association (AHA) instructors, and then targeted underserved areas to provide free BCPR training for these communities. Implementation of a community focused train-the-trainer program allowed for the skills of BCPR to be disseminated into areas and populations that otherwise might not have been reached.

### Participant Demographics

The BRS-SES Pre-Training Survey (see Appendix C) included demographic questions that collected data on participants' gender, age, education level, and ethnicity. Demographic data were analyzed and are presented in Table 2.

Table 2

*Demographic Characteristics*

| Characteristic | *n* | % |
|---|---|---|
| Gender | | |
| Male | 25 | 45.5 |
| Female | 30 | 54.5 |
| Age | | |
| 18-29 | 8 | 14.5 |
| 30-39 | 14 | 25.5 |
| 40-49 | 12 | 21.9 |
| 50-59 | 17 | 30.9 |
| 60-69 | 2 | 3.6 |
| 70-75 | 2 | 3.6 |
| Highest level of education completed | | |
| High school/GED | 29 | 52.7 |
| Associate's | 8 | 14.6 |
| Bachelor's | 11 | 20 |
| Master's | 4 | 7.3 |
| Doctorate | 1 | 1.8 |
| Other | 2 | 3.6 |
| Ethnicity | | |
| White | 31 | 56.4 |
| Black or African American | 14 | 25.5 |
| Asian | 0 | 0 |
| Hispanic or Latino | 6 | 10.9 |
| American Indian or Alaskan | 0 | 0 |
| Native Hawaiian or Pacific Islander | 0 | 0 |
| Two or more races | 4 | 7.2 |
| Other | 0 | 0 |

*Note: N* = 55. GED = general education diploma.

Demographic findings indicated that 45.5% (*n* = 25) of the participants were male and 54.5% (*n* = 30) were female (shown in Figure 1).

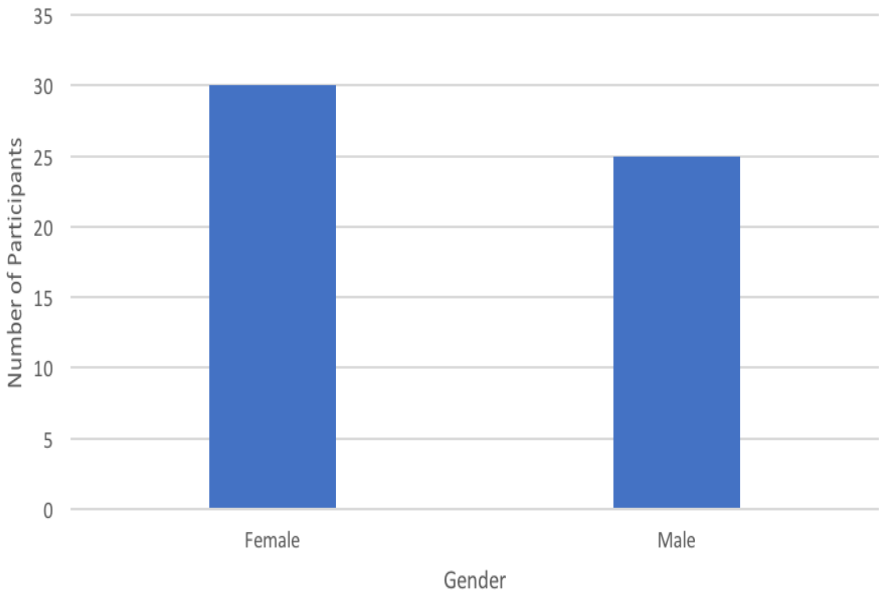


*Figure 1.* Gender distribution of participants

The ages of participants ranged from 18 to 75 years old, with 14.5% (*n* = 8) of participants between the ages of 18-29, 25.5% (*n* = 14) between the ages of 30-39, 21.9% (*n* = 12) between the ages of 40-49, 30.9% (*n* = 17) between ages 50-59, 3.6% (*n* = 2) between the ages of 60-69, and 3.6% (*n* = 2) were between 70-75 years old (see Figure 2).

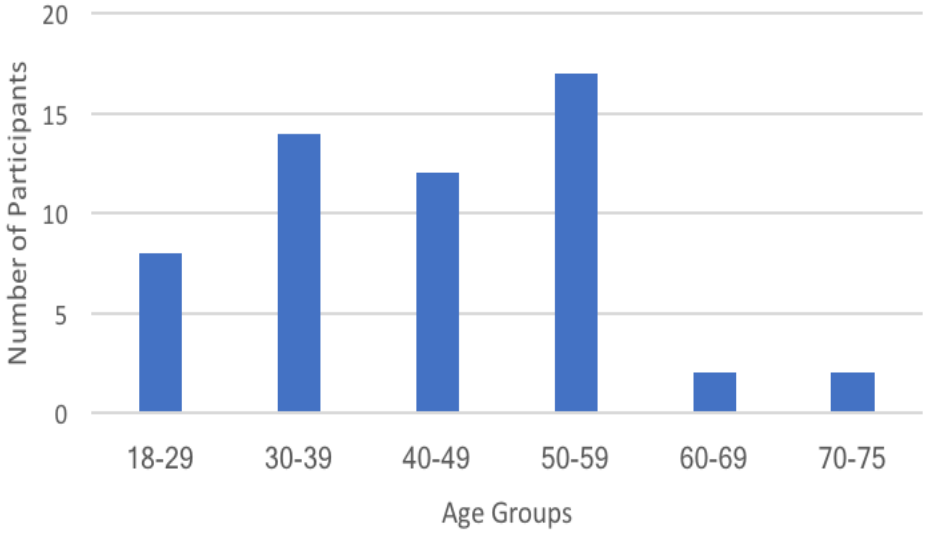


*Figure 2.* Age distribution of participants

In terms of education, 52.7% (*n* = 29) of participants reported they had either completed high school or earned a General Education Diploma (GED), 14.6% (*n* = 8) had earned an Associate's degree, 20% (*n* = 11) had earned a Bachelor's degree, 7.3% (*n* = 4) had earned a Master's degree, and 1.8% (*n* = 1) of participants had earned a Doctoral degree, and 3.6% (n = 2) reported Other (shown in Figure 3).

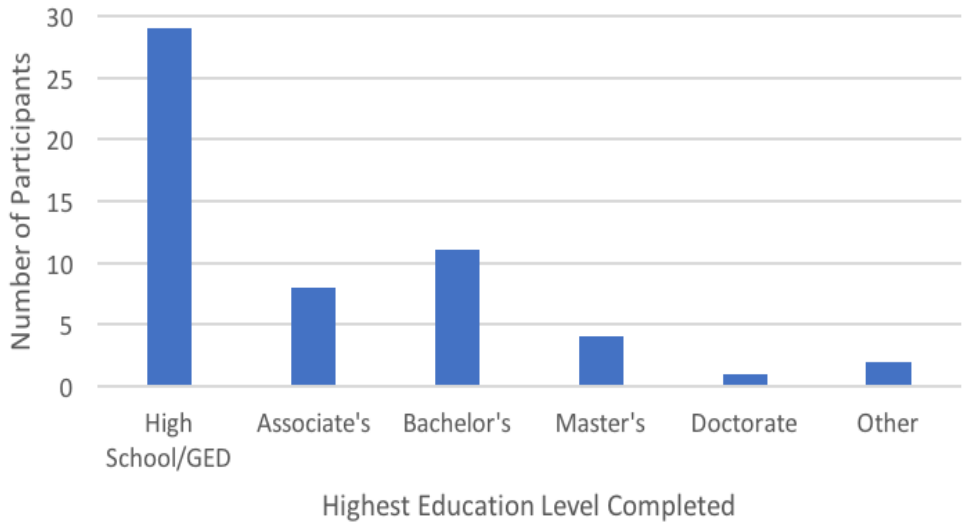


*Figure 3.* Education distribution of participants

*Note.* GED = General education diploma

In terms of ethnicity, 56.4% ($n$ = 31) of participants self-identified as white, 25.5% ($n$ = 14) as Black or African-American, 10.9% ($n$ = 6) as Hispanic or Latino, and 7.3% ($n$ = 4) reported as two or more races (see Figure 4). No participants self-identified as Asian, American Indian or Alaskan Native, Native Hawaiian or Pacific Islander.

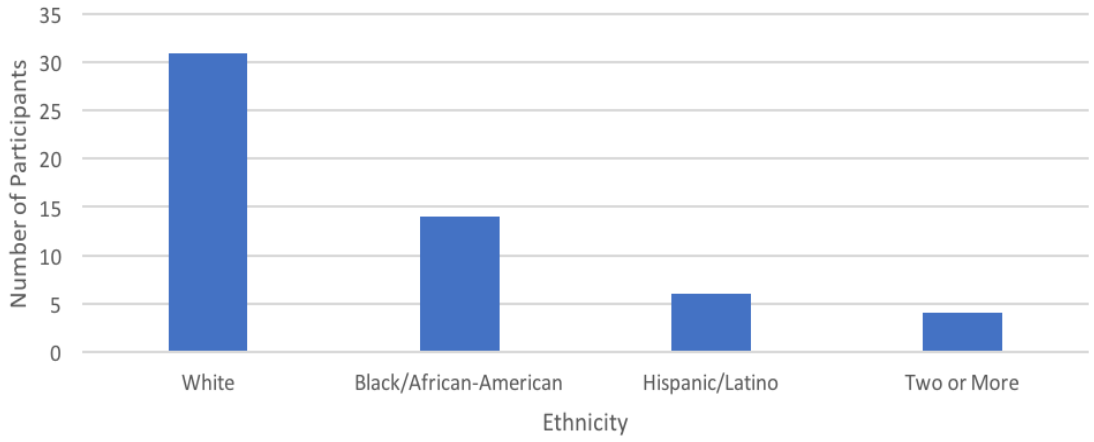


*Figure 4.* Ethnicity distribution of participants

Additionally, participants were asked if they had ever taken a CPR training class prior to participating in the project. Of those, 61.8% ($n = 34$) reported they had previously completed a CPR training class and 38.2% ($n = 21$) reported they had never been previously been trained in CPR.

A one-sample Chi-squared analysis was performed on each demographic variable including age, gender, education, and ethnicity to determine if participation in the project was equally represented. Significance was not found for gender, $\chi^2(1) = 0.455$, $p < 0.500$, so it was concluded that participant gender was evenly represented in the project. Significance was found for age $\chi^2(5) = 21.47$, $p < 0.01$, with younger and middle-aged participants over-represented and older participants under-represented. Significance was also found for education, $\chi^2(5) = 59.22$ ($p < 0.01$), with participants who reported "highest level of education" as high school or GED being over-represented and those who reported "highest level of education" as Master's or Doctorate being under-represented. Participants with an Associate's or Bachelor's degree were equally represented. Lastly, significance was found for ethnicity, $\chi^2(3) = 32.93$ ($p < 0.01$), with whites being over-represented and Hispanics and mixed races being underrepresented. Black or African-American participants were equally represented. Because the BCPR training in this project was targeted to specific underserved areas, the educational level and reported ethnicities were not expected to be equally distributed so this was an expected finding. As performing BCPR requires a certain level of physical ability, a lower number of participants within the older age bracket was also expected.

## Results

A total of 55 participants completed the BCPR training and the Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) Pre and Post-Training surveys (see Appendices C and D) over the course of an 8-week time period. Statistical analyses were completed using the Statistical Package for Social Sciences (SPSS) software (Version 26, by International Business Machines [IBM]).

Paired *t*-tests ($p \leq 0.05$) were conducted to determine if there were statistically significant increases in the BRS-SES pre and post-training survey questions. All six BRS-SES survey questions showed statistically significant increases in self-efficacy when pre and post-training data (all six questions = $p < 0.001$) were analyzed. Additionally, a Wilcoxon Signed-Rank (nonparametric) test was performed in order to control for potential violations of *t*-test assumptions by analyzing ordinal level Likert scale data (McDonald, 2014). Pre and post-training survey mean increases are shown in Figure 5.

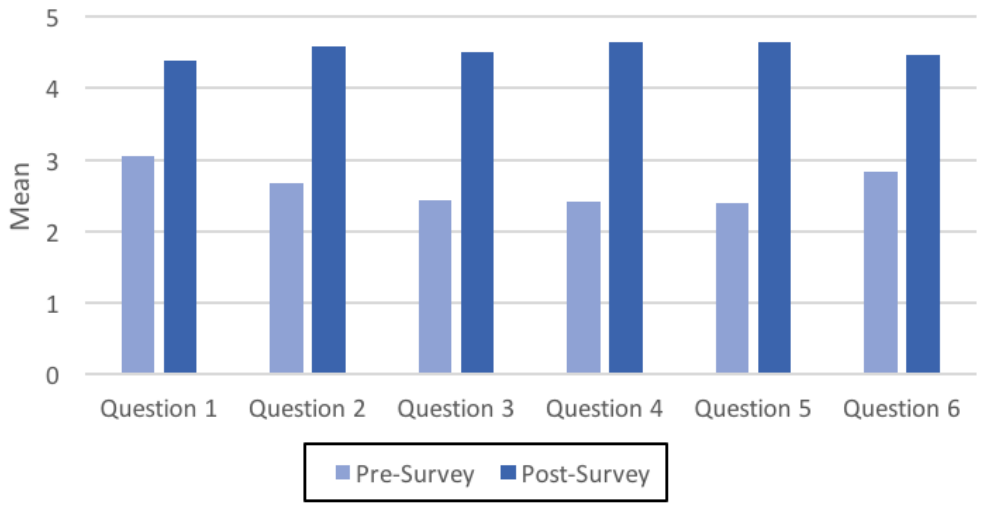


*Figure 5.* BRS-SES Pre and Post-Survey Mean Responses

Results of the paired samples tests for each of the pre and post-training survey questions also showed significant differences ($p < 0.01$) using the Wilcoxon Signed-Rank test. Grouped comparative mean results for the BRS-SES Pre and Post-Training surveys are presented in Table 3.

Table 3

*Pre and Post-Training BRS-SES Survey Paired t Tests*

| Question | Mean | *SD* | *t*(54) | *p* |
|---|---|---|---|---|
| I am confident I can: | | | | |
| *Recognize an unresponsive victim* | | | 7.78 | .001* |
| Pre-training | 3.05 | 1.37 | | |
| Post-training | 4.38 | 0.73 | | |
| *Provide compressions that are at least two inches deep* | | | 10.38 | .001* |
| Pre-training | 2.67 | 1.47 | | |
| Post-training | 4.58 | 0.57 | | |
| *Provide compressions at a rate of 100-120 per minute* | | | 11.43 | .001* |
| Pre-training | 2.44 | 1.36 | | |
| Post-training | 4.51 | 0.63 | | |
| *Place hands in the correct place when administering compressions* | | | 12.19 | .001* |
| Pre-training | 2.42 | 1.29 | | |
| Post-training | 4.65 | 0.58 | | |
| *Know when and how to activate the Emergency Response System* | | | 11.96 | .001* |
| Pre-training | 2.40 | 1.34 | | |
| Post-training | 4.64 | 0.56 | | |
| *Stay calm during a resuscitation attempt* | | | 9.16 | .001* |
| Pre-training | 2.84 | 1.37 | | |
| Post-training | 4.47 | 0.74 | | |
| *I feel more confident administering BCPR after today's training* | | | | |
| Post-training | 4.75 | 0.48 | | |

*Note.* $N = 55$. SD = standard deviation.
*$p \leq .05$.

All questions showed statistically significant increases in self-efficacy from pre-training to post-training. Pre-training survey question number two (provide compressions

at least two inches deep), number three (provide compressions at a rate of 100-120), and question four (place hands in the correct place when administering compressions) were all measured using automatic feedback device mannequins, which provided auditory and visual prompts. Question four (placing hands in the correct position) and question five (know when and how to activate the Emergency Response System) showed the greatest statistically significant mean increases in self-efficacy from pre-training survey to post-training survey.

Of the 55 participants in this project, 38.2% ($n$ = 21) had never previously attended any type of cardiopulmonary resuscitation (CPR) training class. Training these individuals with no prior BCPR experience helped to reduce the deficit of individuals not currently prepared to perform BCPR. Research by Nolan (2014) suggests increasing rates of BCPR performed is likely the most important factor that contributes to increasing patient survival rates for an OHCA. Findings from the EBP BCPR training project indicated participants' self-efficacy levels to perform BCPR were significantly increased through free targeted trainings in underserved areas.

The final question on the post-survey ("I feel more confident administering BCPR after today's training") had a mean score of 4.75, indicating the majority of participants felt adequately prepared to perform BCPR as a result of the training provided through this project.

## Expected Outcomes

The expected outcomes of this project were to find statistically significant increases in self-efficacy on all questions from the pre-training survey to the post-training survey after free BCPR training was completed. It was anticipated that participants would

have higher levels of self-efficacy to deliver BCPR after receiving the BCPR training (post-survey question number seven). Additionally, the five newly trained instructors were expected to complete all required trainings for the project by the deadlines provided.

## Evaluation of Outcomes

The EBP project had six objectives that guided the planning and implementation phases. All six objectives were measured and met.

**Objective 1.** *Identify five community leaders willing to be certified as community instructors and commit to providing at least three classes per year for project sustainability.*

A community assessment of underserved areas in Northeastern Central Florida was performed and community leaders from schools, churches, and non-profit organizations within these areas were contacted through phone calls and e-mails to gain participants for the project. A total of five community leaders were identified and enrolled in the train-the-trainer program. Each instructor was successfully certified to be an AHA BLS instructor. Additionally, each instructor completed one of the required BCPR trainings prior to July 31st, 2019. This project will continue through 2021 with the remaining two additional free BCPR trainings for the first year to be completed by the end of 2019. All required BCPR trainings (cumulative total of six) will be completed by the newly trained instructors by June of 2021. Each instructor has remained compliant with this requirement and has completed three of the required six trainings.

**Objective 2.** *Develop a free train-the-trainer BCPR Instructor program designed for community leaders.*

The train-the-trainer program was successfully developed and included all of the requirements of the AHA's BLS Instructor course. Additionally, the train-the-trainer program included additional instruction on teaching BCPR to community members.

**Objective 3.** *Implement a free BLS Instructor program for a total of five instructor candidates.*

All five instructor candidates successfully completed the required elements of training, including completing an online Instructor Essentials module and an in-person instructor course with verbal and video-based components, passing the BLS Provider Course Exam with a score of 90% or greater and the BLS Instructor Exam with a score of at least 84%. Newly trained instructors successfully demonstrated psychomotor skills according to the AHA's BLS skills checklist, which is an open-access tool for instructor trainers. Additionally, newly trained instructors completed a BLS monitoring session that was evaluated objectively using the AHA Instructor Monitoring Form.

**Objective 4.** *Implement a collaborative BCPR training event for community members within an underserved area of Northeastern Central Florida to increase overall BCPR training rates.*

A week-long BCPR community training was conducted at a non-profit clinic within an underserved area in Northeastern Central Florida. Trainings were conducted from 11am until 5pm every day, for seven consecutive days. A total of 21 community members were trained in BCPR and completed the BRS-SES Pre and Post-Training surveys during this week.

**Objective 5:** *Evaluate the effectiveness of the train-the-trainer program by measuring each individual instructor's BCPR Training Instructor Tracking Forms.*

The BCPR Training Instructor Tracking Form (see Appendix F) was completed at the conclusion of each free community BCPR training. Information on the number of participants in each session, location and address of training, as well as whether a video aid was used during training was collected. All five required BCPR Training Tracking Forms (one from each community trainer) were completed prior to July 31st, 2019. This objective will be re-evaluated at the conclusion of the project in June of 2021 to determine the overall effectiveness of the train-the-trainer program.

**Objective 6.** *Measure BCPR training participants' self-efficacy levels before and after training using the BRS-SES Scale Pre and Post-Training Surveys.*

Self-efficacy levels were measured before and after each free BCPR training using a pre-training survey and a post-training survey that included six identical 5-point Likert scale type questions, and one additional 5-point Likert scale type question on the post-training survey. Responses ranged from not at all confident (1) to extremely confident (5). Participant data were collected from a total of 55 participants. A paired *t*-test was conducted ($p \leq 0.05$) to identify any statistically significant increases in self-efficacy levels, and found statistically significant increases between all six questions on the pre and post-survey responses ($p < 0.001$). Additionally, a Wilcoxon Signed-Rank test was performed and also found statistically significant increases between the pre and post-survey responses ($p < 0.01$). The seventh question on the post-survey ("I feel more confident administering BCPR after today's training") revealed a mean score of 4.75, indicating the free, BCPR trainings increased the majority of participants' self-efficacy to perform BCPR on a victim of an OHCA.

## Discussion

The initial findings of the project suggest that the BCPR trainings provided by the newly trained community instructors is an effective way to increase the number of community members trained in BCPR, and to improve BCPR trained community members' self-efficacy levels to provide BCPR to a victim of an OHCA. The unique use of a train-the-trainer instructor program for community leaders to disseminate free BCPR training to community members in underserved areas will continue to increase the number of individuals trained to respond and provide BCPR to a cardiac arrest victim in areas where it is most needed. This method of BCPR training is currently lacking within communities, but is necessary to increase: the number of individuals trained, the quality of training, and community members' self-efficacy levels to deliver BCPR to OHCA victims.

Providing instructors in the train-the-trainer program with a free instructor certification and equipment to provide community trainings made participation affordable. Additionally, empowering community leaders with the necessary skills to be able to instruct community members in lifesaving techniques and commit to providing at least three free BCPR trainings per year allows for sustainability of the training to continue long-term after project completion. Findings suggest that similar projects should be repeated with a greater number of participants enrolled in the train-the-trainer program, which would further increase the community outreach of free BCPR trainings in underserved areas.

The five initial instructors enrolled in the train-the-trainer program will continue to conduct free BCPR trainings for community members throughout the time period in

which their instructor cards are active (June 2019 through June 2021). Upon completion of the project in 2021, data from the Cardiac Arrest Registry to Enhance Survival (CARES) database will be requested in order to perform a retrospective observational analysis. Data requested will include the total number of OHCAs and the number of OHCAs in which BCPR was performed between June 2019 through June 2021 within the Northeastern Central Florida area where trainings occurred. Data will be analyzed in order to compare BCPR response rate before and after the implementation of the train-the-trainer BCPR training program.

**Strengths**

This project had multiple strengths including community leaders who were passionate about teaching free community BCPR with a goal of improving OHCA patient outcomes. The community leaders also had ties to community organizations in underserved areas in need of BCPR training. Additionally, this project was strengthened by the project implementer's expertise and specialization in a defined content area of cardiac resuscitation. A background as an AHA instructor, Training Site coordinator, and Training Center Faculty member allowed for improved ability to efficiently and effectively implement and evaluate the project.

Using automatic feedback device mannequins for community training was a strength of this project as the mannequins provided real-time feedback for participants and instructors. The use of these mannequins ensured the quality components of BCPR (placing hands in the correct position and compressing at a depth of 2 inches at a rate of 100-120 per minute) were able to be objectively measured and met. Additionally, this project was made possible in part by a grant received by Health Professions Division at

Nova Southeastern University which helped partially cover the costs of the training materials and equipment.

**Limitations**

The EBP project was implemented during the summer months in Northeastern Central Florida. Inclement weather occurred on multiple days of scheduled trainings, which was a limitation as it may have resulted in a smaller number of participants. Coordinating the community and instructors' schedules during the summer also presented a challenge since several instructors needed to find childcare coverage as school was out of session. Because school was out of session, there were limited number of teachers available to participate in the training conducted at the schools. Additionally, the project took place at a non-profit clinic. Although it was anticipated that conducting the project at a busy clinic would increase participation, many clients preferred to not be seen entering and leaving the clinic due to the private nature of visits. Lastly, the demographic survey did not include a question about participants' income level which would have provided a greater understanding of the socioeconomic status of individuals in this project. Although the majority of participants reported high school or GED as their highest level of education completed, which was congruent with the literature, the relationships between ethnicity and socioeconomic status were unable to be linked. Future projects should include a pre-survey demographic question related to annual income to better understand the relationship between lower socioeconomic areas in Northeastern Central Florida and increasing self-efficacy levels to perform BCPR during an OHCA.

## Implications for Nursing Practice

The EBP project has made a significant contribution to future nursing practice. Increasing BCPR training rates and self-efficacy levels of community members to respond to and provide BCPR during an OHCA will increase favorable patient outcomes. Communities without access to training will now have the opportunity to learn lifesaving skills and have the self-efficacy to respond to a victim in cardiac arrest. Results suggest that both self-efficacy levels and rates of BCPR training can be significantly increased through a train-the-trainer program. By certifying community leaders, BCPR training will continue to occur throughout underserved communities in Northeastern Central Florida over the course of the next two years. Additionally, the train-the-trainer EBP BCPR training project incorporated the eight Doctor of Nursing Practice (DNP) Essentials outlined by the American Association of Colleges of Nursing (AACN). Successfully meeting all of the DNP Essentials is critical to efficiently and effectively improving population health and delivering quality care (Bowie, DeSocio, and Swanson, 2019). By incorporating all eight of the DNP Essentials in this project, critical changes to the current healthcare delivery system were facilitated through advanced leadership, collaboration, and integration of evidence-based research into practice.

### Scientific Underpinnings for Practice

The first DNP Essential, scientific underpinnings for practice, focuses on integrating nursing theory and science into clinical practice (AACN, 2006). Implementation of the project embraced Bandura's self-efficacy theory as the guiding framework. Applying the elements of this theoretical framework was a crucial component of the EBP project that focused on increasing self-efficacy levels of community members

to deliver BCPR during an OHCA. Gathering, analyzing, and evaluating evidence from the literature surrounding BCPR allowed for translation of this evidence into clinical practice to improve population health. The train-the-trainer program will be adapted to include any updated evidence as new evidence regarding BCPR training and outcomes becomes available.

**Organizational and Systems Leadership**

DNP Essential II emphasizes organizational and systems leadership with a focus on improving quality patient care (AACN, 2006). Developing, implementing, and leading an evidence-based intervention of the train-the-trainer program and making healthcare delivery changes can improve the quality of care provided to OHCA victims. Leadership skills were demonstrated throughout the project by training community leaders to be AHA instructors, mentoring instructors during community BCPR training, and engaging with all individuals involved in the project using excellent communication skills. Being able to lead within a complex healthcare environment is a necessary skill that the DNP student should be able to demonstrate proficiency (Nordick, 2019). Leadership skills were developed and strengthened throughout the project planning, implementation, and evaluation and were applied to a quality improvement project focused on improving population health. Additionally, the minimal cost expenditure to implement this project versus the beneficial return on investment and quality of life which can be saved, makes this project cost-effective and easily replicable.

**Clinical Scholarship and Analytical Methods**

DNP Essential III focuses on the importance of clinical scholarship and analytic methods for evidence-based practice (AACN, 2006). Being able to utilize current

evidence-based literature to transform findings into clinical practice is an important element necessary for improving patient outcomes. Clinical scholarship has been demonstrated by leading the implementation of the train-the-trainer program that provided an innovative approach to improve a major healthcare issue affecting communities. Skills in transformative leadership displayed by the DNP student are essential to making necessary transformations within an ever-changing healthcare environment (Roush & Tesoro, 2018). Using analytical methods to critically evaluate evidence-based research was essential for to determining the best method of project design and implementation. Gathering statistical data, as well as analyzing and evaluating the data collected, was necessary to determine if findings from the project were significant.

**Information Systems/Technology and Patient Care Technology**

DNP Essential IV highlights the necessity of integrating information systems, technology, and patient care technology into nursing practice to improve healthcare (AACN, 2006). Technology facilitated this project through the use of electronic Internet databases, which were used to locate scholarly research articles, as well as through the use of electronic mail to communicate and collaborate with other professionals and stakeholders. Microsoft Excel and IBM SPSS were used to perform statistical analyses and Microsoft PowerPoint presentations were used to disseminate results of the project. In addition, innovative technology through the use of automatic feedback mannequins during BCPR training was an essential component of this project. Mannequins used to train community members had both auditory and visual cues for participants that allowed for an objective evaluation to ensure high-quality BCPR performance was met (Baldi et

al., 2017). Integrating technology into the project brought a unique element to improve the quality of BCPR training as well as BCPR training rates and self-efficacy levels to perform BCPR. The incorporation of automatic feedback device mannequins into community BCPR training allowed for participants to visually see if compressions were being performed correctly, which may have contributed to increased participant self-efficacy levels.

**Healthcare Policy for Advocacy in Healthcare**

The importance of being involved in healthcare policy analysis and advocacy for social justice is outlined in DNP Essential V (AACN, 2006). As healthcare continues to evolve, a DNP should be able to navigate healthcare policy to make improvements in patient care (Cordova et al., 2019). Healthcare policy related to BCPR training is an essential component necessary to bridge the gap in the current training deficit. High school students have been identified as a group that can be targeted to increase overall BCPR rates across the nation (Hoyme & Atkins, 2017). Although high school students were not included in this EBP BCPR training project as they are minors, a special point was made when selecting community leaders to ensure that at least one trainer was affiliated with a school so ongoing training can be provided to this group after completion of the DNP project.

**Interprofessional Collaboration**

Essential VI requires DNPs to be able to function effectively when collaborating with other professionals to improve patient and population health (AACN, 2006). Interdisciplinary and intradisciplinary collaboration during the project was critical to successful implementation. Discussing the project with other individuals within different

specialties allowed for collaboration of ideas that improved the strength of the project. According to Pencak-Murphy, Staffileno, and Carlson (2015), collaboration among providers enriches learning experiences and assists in accomplishing practice changes. Interprofessional collaboration with community members during the BCPR trainings allowed for partnerships to develop and for community organizations to work together toward increasing self-efficacy and BCPR training rates. Developing interprofessional relationships with community leaders can help support sustainable changes in healthcare practice (Hooshmand, Foronda, Snowden, de Tantillo, & Williams, 2019).

**Clinical Prevention and Population Health**

The focus of DNP Essential VII, clinical prevention and population health, is disease prevention and improving the nation's well-being (AACN, 2006). The EBP BCPR training project facilitated the dissemination of free BCPR trainings into underserved areas to ensure justice is maintained, the health of community members can be improved, and lives can be saved. According to Chipps, Tussing, Labardee, Nash, and Brown (2018), a DNP can improve population health by applying evidence-based research into clinical practice. Preparing individuals with lifesaving skills and increasing self-efficacy levels to respond to a victim of an OHCA, as demonstrated through this project, can greatly improve community and population health.

**Advanced Nursing Practice**

DNP Essential VIII, advanced nursing practice, is focused on translating evidence into clinical practice and acting as a role model for other nurses (AACN, 2006). Integrating current evidence-based processes into practice with the goal of increasing positive patient outcomes demonstrates an advanced level of nursing practice. Mentoring

instructors required advanced levels of clinical experience and judgment, which resulted in the successful implementation of the project. As the project implementer, a leadership role was assumed for all aspects of project planning and implementation. Serving as a leader necessitates immense responsibility including guiding other individuals towards achieving goals (Foss, Eriksson, & Nåden, 2018). A transformational leadership style instilled confidence in the instructors' ability to make positive changes, which were crucial to improving community members' self-efficacy to deliver BCPR during an OHCA.

## Final Conclusions

Anyone can experience a cardiac arrest, at any time, however, providing quality BCPR can vastly improve OHCA victims' outcomes and survival rates. The EBP BCPR training project demonstrated that free BCPR trainings led by community leaders increases BCPR training rates and community member participants' self-efficacy levels to deliver BCPR to a victim during an OHCA. The combination of the train-the-trainer program with targeted training in underserved areas, as well as the use of automatic feedback device mannequins, made this project a one-of-a-kind quality improvement initiative. This project has the potential to save countless lives, and the partnerships created through its implementation will be invaluable in the future to sustain positive outcomes and continue to improve BCPR training rates and self-efficacy levels of community members to respond to a victim in an OHCA.

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# Appendix A

# IRB Approval

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board

**MEMORANDUM**

To: Amanda Constantino
Ron and Kathy Assaf College of Nursing

From: Cristina Garcia-Godoy, D.D.S.
Chair, Institutional Review Board

Date: February 4, 2019

Subject: IRB Initial Approval Memo

TITLE: Increasing Self-Efficacy and Bystander CPR Rates: A Train-the-Trainer Program–NSU IRB Protocol Number 2019-65

Dear Principal Investigator,

Your submission has been reviewed and approved by the Institutional Review Board under Expedited review procedures on February 1, 2019. You may proceed with your study.

*Please Note: Stamped copies of all consent, assent, and recruiting materials indicating approval date must be used when recruiting and consenting or assenting participants.*

**Level of Review:** Expedited

**Type of Approval:** Initial Approval

**Expedited Review Category:** Expedited Category 7

**Level of Risk:** Minimal Risk

**Continuing Review:** Continuing Review is due for this protocol on January 31, 2020. A continuing review (progress report) must be submitted one month prior to the continuing review date.

**Changes:** Any changes in the study (e.g., procedures, consent forms, investigators, etc.) must be



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# Appendix A (cont.)

## IRB Approval

approved by the IRB prior to implementation using the Amendment Form.

**Post-Approval Monitoring:** The IRB Office conducts post-approval review and monitoring of all studies involving human participants under the purview of the NSU IRB. The Post-Approval Monitor may randomly select any active study for a Not-for-Cause Evaluation.

**Final Report:** You are required to notify the IRB Office within 30 days of the conclusion of the research that the study has ended using the IRB Closing Report Form.

**Your study was approved under the following criteria:**

- Waiver of documentation of Consent Form granted under: 45 CFR 117(c)(1) or 45 CFR 117(c)(2)

**Translated Documents:** No

***Please retain this document in your IRB correspondence file.***

CC: Vanessa A Johnson, Ph.D.
Kelly Henson-Evertz

# Appendix B

## Tool Permission Letter

Middlesex University

25 AÑOS 1993 | 2018 UNIVERSIDAD DE ALMERÍA

**REQUEST FOR PERMISSION TO USE THE 'BASIC RESUSCITATION SKILLS SELF-EFFICACY SCALE (BRS-SES)'**

Amanda Constantino
MSN, RN, CEN, Doctor of Nursing Practice Student
Nova Southeastern University
Palm Beach Gardens, Florida, USA
September 4th, 2018

Dear Dr José Manuel Hernández-Padilla:

As a doctoral nursing student at Nova Southeastern University, I am writing to ask permission to adopt and adapt your instrument, the Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES), in an evidence-based Doctor of Nursing Practice (DNP) project that I will be completing in June of 2019 in the state of Florida, United States.

I will be conducting free hands-only CPR training to community members in order to increase the overall percentage of individuals who are trained in bystander CPR as well as increase self-efficacy levels of participants in responding to out-of-hospital cardiac arrest events. Additionally, I am implementing a free train-the-trainer program for community leaders in order to make the training sustainable for the future. I would like to use the BRS-SES to appraise self-efficacy levels of the individuals trained regarding resuscitation tasks.

I would like to see if I could get approval from you and your fellow researchers to adopt and adapt the BRS-SES tool as part of the data collection for my planned study.

Sincerely yours,

*Amanda Constantino*

Signed by Amanda Constantino
AC3118@mynsu.nova.edu

**PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:**

By: Dr José Manuel Hernández-Padilla

Signature:

Date: 04.09.2018

# Appendix C

## Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) Pre-Training Survey

NOVA SOUTHEASTERN UNIVERSITY
Ron and Kathy Assaf College of Nursing

**Basic Resuscitation Skills Self-Efficacy Scale Pre-Training Survey**

**First 2 letters of First Name: ____ ____** **Last 3 digits of Phone #: ___ ___ ___**

**Check one box for each of the following questions. If you do not feel comfortable answering a question, please leave it blank and go on to the next one:**

| |
|---|
| **Gender:** ☐Male ☐Female |
| **Age:**_____ |
| **Highest Level of Education Completed:** ☐High School or GED ☐Associate's ☐Bachelor's ☐Master's ☐Doctorate ☐Other:_____ |
| **Ethnicity:** ☐White ☐Black or African-American ☐Asian ☐ Hispanic or Latino ☐American Indian or Alaskan Native ☐Native Hawaiian or Pacific Islander ☐Two or more races ☐Other:_____ |
| **Do you have a current CPR certification?** ☐Yes ☐No |
| **Have you ever taken a CPR training class?** ☐Yes ☐No |
| **How did you hear about this event?** ☐Outreach Community Care Network ☐Online ☐Friend ☐Driving by |

**In an emergency situation, I am confident I can: (check one box for each question):**

| | 1 Not at all Confident | 2 Not Very Confident | 3 Moderately Confident | 4 Very Confident | 5 Extremely Confident |
|---|---|---|---|---|---|
| **Recognize an unresponsive victim** | | | | | |
| **Provide compressions that are at least 2 inches deep** | | | | | |
| **Provide compressions at a rate of 100-120 per minute** | | | | | |
| **Place hands in the correct place when administering compressions** | | | | | |
| **Know when and how to activate the Emergency Response System (EMS)** | | | | | |
| **Stay calm during a resuscitation attempt** | | | | | |

# Appendix D

## Basic Resuscitation Skills Self-Efficacy Scale (BRS-SES) Post-Training Survey

NOVA SOUTHEASTERN UNIVERSITY
Ron and Kathy Assaf College of Nursing

**Basic Resuscitation Skills Self-Efficacy Scale Post-Training Survey**

**First 2 letters of First Name: ____ ____** **Last 3 digits of Phone #: ___ ___ ___**

**Check one box for each of the following questions. If you do not feel comfortable answering a question, please leave it blank and go on to the next one:**

**In an emergency situation, I am confident I can: (check one box for each question):**

| | 1 Not at all Confident | 2 Not Very Confident | 3 Moderately Confident | 4 Very Confident | 5 Extremely Confident |
|---|---|---|---|---|---|
| **Recognize an unresponsive victim** | | | | | |
| **Provide compressions that are at least 2 inches deep** | | | | | |
| **Provide compressions at a rate of 100-120 per minute** | | | | | |
| **Place hands in the correct place when administering compressions** | | | | | |
| **Know when and how to activate the Emergency Response System (EMS)** | | | | | |
| **Stay calm during a resuscitation attempt** | | | | | |
| **I feel more confident administering BCPR after today's training** | | | | | |

**Comments (optional):**

_____

_____

# Appendix E

# Participant Letter

NSU IRB APPROVED:
Approved: February 1, 2019
Expired: January 31, 2020
IRB#: 2019-65-Non-NSU

NOVA SOUTHEASTERN UNIVERSITY
Ron and Kathy Assaf College of Nursing

**Participant Letter**

**NSU Consent to Participate in a Doctor of Nursing Practice (DNP) Evidence-Based Project Entitled**

*Increasing Self-Efficacy and Bystander CPR Rates: A Train-the-Trainer Program*

**Who is doing this project?**
Amanda Constantino is a Doctor of Nursing Practice (DNP) student at Nova Southeastern University in the Ron and Kathy Assaf College of Nursing. This student's faculty advisor and project chair is Dr. Kelly Henson-Evertz.

**Why are you asking me to participate in this project?**
You are being asked to be in this evidence-based community improvement project because you are not a healthcare provider, you are not certified in cardiopulmonary resuscitation (CPR), and you reside in the area where this free training is taking place.

**Why is this project being done?**
The purpose of this project is to increase the number of community members in underserved areas in Central Florida who are trained in bystander cardiopulmonary resuscitation (BCPR) and to increase self-efficacy (confidence) levels of community members trained in BCPR to deliver BCPR to a victim in cardiac arrest.

**What will I be doing if I agree to participate in this project?**
If you agree to participate, you will be asked to complete a pre-training and post-training survey. The pre-training survey consists of six questions that assess how confident you are in performing BCPR to a cardiac arrest victim. The post-training survey consists of seven questions to assess if your confidence to deliver BCPR to a cardiac arrest victim increased because you participated in the BCPR training session. The surveys will take approximately five minutes each to complete. The BCPR training will take approximately 10 minutes with additional time allowed for questions or additional practice.



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# Appendix E (cont.)

## Participant Letter

NSU IRB APPROVED:
Approved: February 1, 2019
Expired: January 31, 2020
IRB#: 2019-65-Non-NSU

**Are there possible risks and discomforts to me?**
This project involves minimal risk to you. To the best of our knowledge, the things you will be doing have no more risk of harm than you would have in everyday life. Physical risks are unlikely, but an unintentional emotional response may occur as a result of performing compressions on the mannequin and/or by discussing death and dying. Survey answers will not be linked to you and are intended to be anonymous.

You may find some questions we ask you (or some things we ask you to do) to be upsetting or stressful during the BCPR training session. If so, we can provide you with free resources and are available for debriefing to help you with these feelings.

**What happens if I do not want to participate in this project?**
Participation is voluntary and you can stop participating at any time. You can decide not to participate and it will not be held against you.

**Will it cost me anything? Will I get paid for being in the study?**

There is no cost for participation in this study. Participation is voluntary and no payment will be provided.

**How will you keep my information private?**

Your responses are anonymous. Information we learn about you during this project will be handled in a confidential manner, within the limits of the law. This data will be available to the investigator, the Institutional Review Board, and other representatives of this institution. All confidential data will be kept securely in a locked box and in an electronic data file in a password protected folder on a password protected computer. All data will be kept for 36 months from the end of the study and destroyed after that time by shredding paper surveys and deleting computer files.

**Who can I talk to about the study?**

If you have questions, you can contact Amanda Constantino at 407-243-8442. If you have questions about the study but want to talk to someone else who is not a part of the study, you can call the Nova Southeastern University Institutional Review Board (IRB) at (954) 262-5369 or toll free at 1-866-499-0790 or email at IRB@nova.edu.

**Do you understand and do you want to participate in the project?**

If you have read the above information and voluntarily wish to participate in this evidence-based project, please complete the surveys provided.

# Appendix F

## BCPR Training Instructor Tracking Form

Bystander CPR Training Instructor Tracking Form

Date: _____

Instructor Name: _____

Training Location: _____

Training Address: _____

Video Used During Training (circle one): YES or NO

Number of students who passed compression skills demonstration using an automatic feedback device: _____

Total number of participants trained: _____

Appendix G

Recruitment Flyer